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Docket No.: 501.43751X00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:

Hideomi IDEI et al.

Serial No. 10/820,858

Filed: April 9, 2004

For: COMPUTER SYSTEM FOR RECOVERING DATA BASED ON
PRIORITY OF THE DATA

SUPPLEMENTAL REQUEST FOR RECONSIDERATION

June 16, 2005

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Supplemental to the Request for Reconsideration filed on April 6, 2005, in view of the meeting between Mr. Brundidge and Mr. Laufer held on May 9, 2005 clarifying issues related to the granting of Petitions to Make Special, Applicants submit the following additional remarks.

It is submitted that the cited references, whether considered alone or in combination, fail to disclose or suggest the invention as claimed. In particular, the cited references, at a minimum, fail to disclose or suggest in combination with the other limitations recited in the claims:

a first feature of the present invention as recited in independent claim 1 wherein the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of information

inputted to the computer for management and, by a unit of a group obtained by the grouping, transfers data updated in the group to the second storage apparatus, and wherein, if the first site is stopped, the second site recovers the data by a unit of the group;

a second feature of the present invention as recited in independent claim 9 wherein the control unit subjects data, which are stored in storage areas included in the plurality of disk units, to grouping on the basis of information inputted to the computer for management, stores information on the grouping in the memory, and, by a unit of a group subjected to the grouping, transfers data updated in the group to the second storage apparatus on the basis of the information stored in the memory; and

a third feature of the present invention as recited in independent claim 11 wherein the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of priorities based upon a recovery time required in recovering data in the second site, which are inputted to the computer for management, and, by a unit of a group subjected to the grouping, transfers data updated in the group to the second storage apparatus, and wherein, if the first site is stopped, the second site recovers the data included in the groups subjected to the grouping in an order of priorities of the required recovery time.

To the extent applicable to the present Petition, Applicants submit that although the distinguishing feature(s) may represent a substantial portion of the claimed invention, the claimed invention including said feature(s) and their inter-

operation provides a novel storage system and system and method related to or implemented in or by said storage system not taught or suggested by any of the references of record.

The references considered most closely related to the claimed invention are briefly discussed below:

U.S. Patent No. 5,659,614 (Bailey, III) discloses a method and system for prioritizing, securing, and reducing the amount of data transmitted and stored during the creation of a backup copy of file data. Sectors in which changes have been made are identified as are the actual changes made to the sectors. Only the actual changes within each changed sector, along with the HCS number and a byte offset identifying the location within the sector at which the changes occur, are transmitted to the backup site. Files that are to be transmitted to the backup site are prioritized according to ratings based on predetermined criteria. Higher rated files are transmitted to the backup site prior to lower rated files. The files that are to be transmitted to the backup site are encoded and double encrypted. All instances of predetermined client-specific data elements within each file are identified and replaced by a corresponding code prior to encryption. The file data is then encrypted using multiple, indirect encryption keys, variable block lengths, and variable algorithms based on a client-selected string of characters. The files are thereafter encrypted again at the client site prior to transmission to the backup site. A program registry is maintained at the backup site that contains a master copy of many commercially-available files. The incoming files received from the client site are compared to the files in the program registry. If an

incoming file is located in the registry, the file is replaced by a token identifying the commercially-available file and the token is stored at the backup facility. However, unlike the present invention, Bailey does not disclose where the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of information inputted to the computer for management and, by a unit of a group obtained by the grouping, transfers data updated in the group to the second storage apparatus, or where, if the first site is stopped, the second site recovers the data by a unit of the group, or where if the first site is stopped, the second site recovers the data included in the groups subjected to the grouping in an order of priorities of the required recovery time. More particularly, Bailey does not disclose or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 9 and the above described third feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

U.S. Patent No. 5,966,730 (Zulch) discloses a backup system operated in accordance with a server or intelligent storage data controller containing a pre-written script governing a backup protocol. This script designates the possible source of data for backup that could become visible on the network and the possible storage sets that may be available in the storage repository. Preferably, the script also contains a timetable for when the script should be active, and wrap up interval of time for intelligently terminating a particular backup operation. In

operation, the total number of accessible data sources (usually computers) and the total number of storage media destinations (for example available tapes mounted in tape drives) are generated to list possible source to storage paths. Utilizing the script, the possible source to storage paths are prioritized with the least recently backed up source as data by the available media having first priority for backup. Once prioritization has occurred, backup is initiated in the order of prioritization to the first available of the designated source to storage media paths. This designation source to media available paths continues down through the prioritized source to storage paths, initiating backup when the source and media are available. As each backup is completed, a new prioritization of source to media paths occurs responsive to location of the last backed up source, with backup occurring on the first available source to media path. Scripts can be tailored to prioritize backups dependent upon time of day. There results a fully automated backup which once programmed does not require constant supervisor monitoring. However, unlike the present invention, Zulch does not disclose where the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of information inputted to the computer for management and, by a unit of a group obtained by the grouping, transfers data updated in the group to the second storage apparatus, or where, if the first site is stopped, the second site recovers the data by a unit of the group, or where if the first site is stopped, the second site recovers the data included in the groups subjected to the grouping in an order of priorities of the required recovery time. More particularly, Zulch does not

disclose or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 9 and the above described third feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

U.S. Patent No. 6,553,401 (Carter et al.) discloses a method of providing high availability of a service includes the step of allocating the service and a shared volume of a first mass storage device associated with the service to a first server of a first subcluster that is located at a first site and that includes servers which share the first mass storage device. Another step of the method includes mirroring the shared volume to a second mass storage device of a second subcluster that is located at a second site and that includes at least one server in order to obtain a first mirrored copy of the shared volume at the second site. Yet another step of the method includes determining to reallocate said service to a first server of the second subcluster. The method also includes the step of allocating the first mirrored copy to the first server of the second subcluster. Moreover, the method includes the step of allocating the service to the first server of the second subcluster in response to the step of determining to reallocate the service to the first server of the second subcluster. Apparatus for carrying out the method are also disclosed. However, unlike the present invention, Carter does not disclose where the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of information inputted to the computer for management

and, by a unit of a group obtained by the grouping, transfers data updated in the group to the second storage apparatus, or where, if the first site is stopped, the second site recovers the data by a unit of the group, or where if the first site is stopped, the second site recovers the data included in the groups subjected to the grouping in an order of priorities of the required recovery time. More particularly, Carter et al. does not disclose or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 9 and the above described third feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

U.S. Patent No. 6,601,187 (Sicola et al.) discloses a data replication system having a redundant configuration including dual Fibre Channel fabric links interconnecting each of the components of two data storage sites, wherein each site comprises a host computer and associated data storage array, with redundant array controllers and adapters. Each array controller in the system is capable of performing all of the data replication functions, and each host 'sees' remote data as if it were local. Each array controller has a dedicated link via a fabric to a partner on the remote side of the long-distance link between fabric elements. Each dedicated link does not appear to any host as an available link to them for data access; however, it is visible to the partner array controllers involved in data replication operations. These links are managed by each partner array controller as if being 'clustered' with a reliable data link between

them. However, unlike the present invention, Sicola does not disclose where the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of information inputted to the computer for management and, by a unit of a group obtained by the grouping, transfers data updated in the group to the second storage apparatus, or where, if the first site is stopped, the second site recovers the data by a unit of the group, or where if the first site is stopped, the second site recovers the data included in the groups subjected to the grouping in an order of priorities of the required recovery time. More particularly, Sicola et al. does not disclose or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 9 and the above described third feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

U.S. Patent Publication No. 2003/0069889 A1 (Ofek et al.) discloses a data network with data storage facilities for providing redundant data storage and for enabling concurrent access to the data for multiple purposes. A first data processing system with a first data facility stores a data base and processes transactions or other priority applications. A second data storage facility, that may be physically separated from the first data storage facility, mirrors the data in the first data storage facility. In a concurrent access operating mode, the second data storage facility makes the data available to an application concurrently with, but independently of, the operation of the other application. On completion of the

concurrent operation, the second data storage facility can reconnect with and synchronizes with the first data storage facility thereby to reestablish the mirroring operation. However, unlike the present invention, Ofek does not disclose where the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of information inputted to the computer for management and, by a unit of a group obtained by the grouping, transfers data updated in the group to the second storage apparatus, or where, if the first site is stopped, the second site recovers the data by a unit of the group, or where if the first site is stopped, the second site recovers the data included in the groups subjected to the grouping in an order of priorities of the required recovery time. More particularly, Ofek et al. does not disclose or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 9 and the above described third feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

U.S. Patent Publication No. 2003/0115433 A1 (Kodama) discloses a storage system includes local storage and remote storage. The local storage operates to receive read and write requests to read data from and write data to local storage media. A controller of the local storage maintains a pair table containing the identification of pairs, each pair being a predetermined storage area of the local storage media and a corresponding storage area of the remote

storage area. Data written a storage area is assigned a priority, and a remote copy message is prepared, identifying the data, the assigned priority, and the pair containing the identity of the storage area to which the data is written. The remote copy message is stored in a remote copy queue that is periodically reviewed for pending remote copy messages. Any that are found are compared for priorities. Those remote copy messages with higher assigned priorities result in the corresponding data being sent for storage to the remote storage before those remote copy messages with lower assigned priorities. However, unlike the present invention, Kodama does not disclose where the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of information inputted to the computer for management and, by a unit of a group obtained by the grouping, transfers data updated in the group to the second storage apparatus, or where, if the first site is stopped, the second site recovers the data by a unit of the group, or where if the first site is stopped, the second site recovers the data included in the groups subjected to the grouping in an order of priorities of the required recovery time. More particularly, Kodama does not disclose or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 9 and the above described third feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

U.S. Patent Publication No. 2003/0177324 A1 (Timpanaro-Perrotta)

discloses a system, method, and program for maintaining a backup copy of files in a primary storage device in a backup storage device. The files in the primary storage device are capable of being restored from the backup copy of the files in the backup storage device. An association of one of a plurality of priority values is maintained for each file in the backup copy in the backup storage device. The priority value associated with each file in the backup copy of the files is used to determine the order in which the files in the backup copy are restored from the storage device to the primary storage device. However, unlike the present invention, Timpanaro-Perrotta does not disclose where the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of information inputted to the computer for management and, by a unit of a group obtained by the grouping, transfers data updated in the group to the second storage apparatus, or where, if the first site is stopped, the second site recovers the data by a unit of the group, or where if the first site is stopped, the second site recovers the data included in the groups subjected to the grouping in an order of priorities of the required recovery time. More particularly, Timpanaro-Perrotta does not disclose or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 9 and the above described third feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

U.S. Patent Publication No. 2004/0128363 A1 (Yamagami et al.)

discloses a method for handling a remote copy request in a distributed storage includes providing a plurality of primary volumes within a primary storage system that is coupled to a primary host via a first network, the primary storage system being coupled to a secondary storage system via a second network. A first request is selected from a plurality of requests placed in a queue based on priority information associated with the requests. A first path group is selected from one or more path groups that could be used to transmit the request. The first request is transmitted to the secondary storage system using the first path group, the secondary storage system including a plurality of secondary volumes that are paired to the plurality of primary volumes. However, unlike the present invention, Yamagami does not disclose where the first storage apparatus subjects data, which are stored in storage areas included in the storage apparatus, to grouping on the basis of information inputted to the computer for management and, by a unit of a group obtained by the grouping, transfers data updated in the group to the second storage apparatus, or where, if the first site is stopped, the second site recovers the data by a unit of the group, or where if the first site is stopped, the second site recovers the data included in the groups subjected to the grouping in an order of priorities of the required recovery time. More particularly, Yamagami et al. does not disclose or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 9 and the above described third feature of the present

invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

Therefore, since the cited references fail to disclose or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 9 and the above described third feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims, it is submitted that all of the claims are patentable over the cited references whether said references are taken individually or in combination with each other.

In view of the foregoing, Applicant requests that this Petition to Make Special be granted and that the application undergo the accelerated examination procedure set forth in MPEP 708.02 VIII.

Respectfully submitted,

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